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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,438

03/26/2004

Toshio Sugiura

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09/21/2006

OLIFF & BERRIDGE, PLC

P.O. BOX 19928

ALEXANDRIA, VA 22320

EXAMINER

CULLER, JILL E

ART UNIT

PAPER NUMBER

2854

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,438

Applicant(s)

SUGIURA, TOSHIO

Examiner

Jill E. Culler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-23 and 25 is/are rejected.
- 7) ☒ Claim(s) 10 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 11, 16, 18-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,580,042 to Taniguro et al. in view of U.S. Patent No. 6,712, 357 to Tranquilla.

With respect to claims 1-4, Taniguro et al. teaches a recording medium conveying device, 112, that conveys a recording medium to a recording area comprising a pair of first conveyor rollers, 136, 137, that are provided upstream of and adjacent to the recording area and convey a recording medium by nipping the recording medium therebetween, no roller being disposed between the pair of first conveyor rollers and the recording area, and a detector, 142, that detects a position of the recording medium. See column 7, line 61 to column 8, line 8 and Figure 8.

Taniguro et al. does not teach that the detector detects a distance from the pair of first conveyor rollers to a trailing edge of the recording medium and thereby a position of the recording medium in accordance with a distance of the recording medium conveyed by the pair of first conveyor rollers, a nipping force changing unit that changes the nipping force of the pair of first conveyor rollers; or a controller that controls an operation of the nipping force changing unit in accordance with the position of the

recording medium detected by the detector and allows the nipping force changing unit to reduce the nipping force of the pair of first conveyor rollers, step by step, in accordance with the detection result of the detector.

Tranquilla teaches a recording medium conveying device, comprising: a pair of first conveyor rollers, 114, 116, that are provided upstream of and adjacent to the recording area and convey a recording medium by nipping the recording medium therebetween; a detector, 122, that detects a distance from the pair of first conveyor rollers to a trailing edge of the recording medium and thereby detects a position of the recording medium in accordance with a distance of the recording medium conveyed by the pair of the first conveyor rollers; a nipping force changing unit, 152, that changes the nipping force of the pair of first conveyor rollers; and a controller, 154, that controls an operation of the nipping force changing unit in accordance with the position of the recording medium detected by the detector and allows the nipping force changing unit to reduce the nipping force of the pair of first conveyor rollers, step by step, in accordance with the detection result of the detector. See column 3, lines 33-61, column 4, lines 19-36, column 5, lines 36-60, and Figure 3a.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the conveyor rollers of Taniguro et al. to have the nipping force changing unit and controller of Tranquilla in order to be able to remove the pinch force from the document during document processing, preventing external forces from affecting the positioning of the document.

With respect to claim 16, Taniguro et al. teaches an image forming apparatus comprising an image forming device, 149, that forms an image onto a recording medium, a platen, 146, that is provided facing a recording operating surface of the image forming device, a pair of first conveyor rollers, 136, 137, that are provided upstream of and adjacent to the platen and convey a recording medium by nipping the recording medium therebetween, no roller being disposed between the pair of first conveyor rollers and the recording area, and a detector, 142, that detects a position of the recording medium. See column 7, line 61 to column 8, line 13 and Figure 8.

Taniguro et al. does not teach a nipping force changing unit that changes the nipping force of the pair of first conveyor rollers; or a controller that controls an operation of the nipping force changing unit in accordance with the position of the recording medium detected by the detector.

Tranquilla teaches an image forming apparatus that forms an image onto a recording medium, comprising: a pair of first conveyor rollers, 114, 116, that are provided upstream of and adjacent to the recording area of the image forming device and convey the recording medium by nipping the recording medium therebetween; a detector, 122, that detects a position of the recording medium; a nipping force changing unit, 152, that changes the nipping force of the pair of first conveyor rollers; and a controller, 154, that controls an operation of the nipping force changing unit in accordance with the position of the recording medium detected by the detector. See column 3, lines 33-61, column 4, lines 19-36 and Figure 3a.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the conveyor rollers of Taniguro et al. to have the nipping force changing unit and controller of Tranquilla in order to be able to remove the pinch force from the document during document processing, preventing external forces from affecting the positioning of the document.

With respect to claims 5, 6, 18 and 20, Taniguro et al. does not teach a driver that drives the pair of first conveyor rollers, wherein the controller controls the driver so as to intermittently drive the pair of first conveyor rollers, or that the controller allows the nipping force changing unit to change the nipping force while the pair of first conveyor rollers are not driven.

Tranquilla teaches a driver, 158, that drives the pair of first conveyor rollers, wherein the controller controls the driver so as to intermittently drive the pair of first conveyor rollers, see column 3, lines 58-66, and that the controller allows the nipping force changing unit to change the nipping force while the pair of first conveyor rollers are not driven. See column 3, line 66 - column 4, line 9.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the driver and controls of Tranquilla to improve control over the nipping force

With respect to claims 7, 11 and 21, Taniguro et al. teaches a pair of second conveyor rollers, 59, 61, that are provided downstream of the pair of first conveyor rollers and convey the recording medium, which is conveyed from the pair of first conveyor rollers, by nipping the recording medium therebetween.

Taniguro et al. does not teach that the driver drives the pair of second conveyor rollers together with the pair of first conveyor rollers, or that the controller corrects the conveying distance of the recording medium by the pair of second conveyor rollers when the recording medium is released from the nipping of the pair of first conveyor rollers

Tranquilla teaches a pair of second conveyor rollers, 118, 120, that are provided downstream of the pair of first conveyor rollers and convey the recording medium, which is conveyed from the pair of first conveyor rollers, by nipping the recording medium therebetween, wherein the driver drives the pair of second conveyor rollers together with the pair of first conveyor rollers. See column 3, lines 48-53. Tranquilla also teaches the controller corrects the conveying distance of the recording medium by the pair of second conveyor rollers when the recording medium is released from the nipping of the pair of first conveyor rollers. See column 4, lines 36-64.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the controls of Tranquilla to improve control over the printing medium as it is transported.

With respect to claims 8 and 22, Taniguro et al. does not teach a condition change determining unit that determines whether a current condition is going to be changed by a next intermittent driving of the pair of first conveyor rollers performed by the driver, from a condition where the recording medium is conveyed by both the pairs of first and second conveyor rollers to a condition where the recording medium is conveyed by the pair of the second conveyor rollers only, wherein when the condition

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change determining unit determines that the current condition is going to be changed to the condition where the recording medium is conveyed by the pair of the second conveyor rollers only, the controller reduces the nipping force of the pair of first conveyor rollers during the next driving of the first conveyor rollers, by means of the nipping force changing unit.

Tranquilla teaches a condition change determining unit that determines whether a current condition is going to be changed by a next intermittent driving of the pair of first conveyor rollers performed by the driver, from a condition where the recording medium is conveyed by both the pairs of first and second conveyor rollers to a condition where the recording medium is conveyed by the pair of the second conveyor rollers only, wherein when the condition change determining unit determines that the current condition is going to be changed to the condition where the recording medium is conveyed by the pair of the second conveyor rollers only, the controller reduces the nipping force of the pair of first conveyor rollers during the next driving of the first conveyor rollers, by means of the nipping force changing unit. See column 4, lines 36-64.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the condition change determining unit of Tranquilla to improve control over the printing medium as it is transported.

With respect to claims 9 and 23, Taniguro et al. does not teach the nipping force changing unit releases the recording medium from the nipping force of the pair of first

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conveyor rollers or reduces the nipping force of the pair of first conveyor rollers to a strength smaller than a maximum conveying force of the pair of first conveyor rollers that can be transmitted to the recording medium.

Tranquilla teaches the nipping force changing unit releases the recording medium from the nipping force of the pair of first conveyor rollers or reduces the nipping force of the pair of first conveyor rollers to a strength smaller than a maximum conveying force of the pair of first conveyor rollers that can be transmitted to the recording medium. See column 4, lines 4-9.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the apparatus of Taniguro et al. to have the controls of Tranquilla to improve control over the printing medium as it is transported.

With respect to claims 19 and 25, Taniguro et al. teaches an image forming device including a carriage, 50, that reciprocates in a direction perpendicular to a recording medium conveying direction and an ink-jet type recording head, 49, that is mounted on the carriage, wherein the pair of first conveyor rollers, 36, 37, intermittently convey the recording medium and an image forming operation is performed by driving the carriage and the recording head while the pair of first conveyor rollers are not driven. See column 3 line 64 - column 4, line 33.

3. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguro et al. in view of Tranquilla as applied to claims 1-9, 11, 16, 18-23 and 25 above, and further in view of U.S. Patent No. 5,129,749 to Sato.

Taniguro et al. and Tranquilla teach all that is claimed, as in the above rejection of claims 1-9, 11, 16, 18-23 and 25. Tranquilla also teaches that the nipping force changing unit is provided with an arm that supports one roller, 116, of the pair of first conveyor rollers so as to be movable closer to and away from the other roller, 114, of the pair of first conveyor rollers, and adjusts the nipping force of the pair of first conveyor rollers and further comprises a stopper, 300, that holds the one roller away from the other roller, between the cam and the arm.

Taniguro et al. and Tranquilla do not teach rotating the arm via a cam

Sato teaches a nipping force changing unit provided with an arm 13, that supports one roller, 2, of a pair to be movable closer to and away from the other roller, 1, and adjusts the nipping force of the pair of rollers by rotating the arm via a cam, 7.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the cam arrangement of Sato to move the changing unit arm of Taniguro et al. in view of Tranquilla in order to have consistent, intermittent change of the nipping force.

4. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguro et al. in view of Tranquilla as applied to claims 1-9, 11, 16, 18-23 and 25 above, and further in view of U.S. Patent No. 4,619, 451 to Dodge.

Taniguro et al. and Tranquilla teach all that is claimed, as in the above rejection of claims 1-9, 11, 16, 18-23 and 25, except that the pair of first conveyor rollers and the nipping force changing unit includes a plurality of pairs of first conveyor rollers and

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nipping force changing units which are disposed in a direction perpendicular to a recording medium conveying direction and symmetrical with respect to a center line of the recording medium in a width direction of the recording medium, and the controller controls the forces to be all the same strength or allows the nipping force changing unit to reduce the nipping force of a pair of first conveyor rollers disposed at a position further from a center of the recording medium in the width direction, prior to a pair of first conveyor rollers disposed at a position near the center of the recording medium.

Dodge teaches a plurality of pairs of conveyor rollers, 6, 7, and nipping force changing units, 15, which are disposed in a direction perpendicular to a recording medium conveying direction and symmetrical with respect to a center line of the recording medium in a width direction of the recording medium, and are controlled such that the nipping forces are all of the same strength or that the nipping force is reduced in a pair of first conveyor rollers disposed at a position further from a center of the recording medium in the width direction, prior to a pair of first conveyor rollers disposed at a position near the center of the recording medium. See column 2, lines 40-61 and column 3, lines 3-19.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the invention of Taniguro et al. to use the plurality of rollers and nipping force changing units, as taught by Dodge, in order to have adjustable control of the nipping force across the width of the recording medium.

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5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguro et al. in view of Tranquilla as applied to claims 1-9, 11, 16, 18-23 and 25 above, and further in view of U.S. Patent No. 4,053,224 to Burkard et al.

Taniguro et al. and Tranquilla teach all that is claimed, as in the above rejection of claims 1-9, 11, 16, 18-23 and 25 except that the platen includes an air inlet that allows suction of air and an air suction unit that sucks air through the air inlet, and holds the recording medium to the platen by suction.

Burkard et al. teaches an image forming device having a platen, 28, that includes an air inlet that allows suction of air and an air suction unit that sucks air through the air inlet, and holds the recording medium to the platen by suction. See column 4, lines 15-23 and Figure 1.

It would have been obvious to one having ordinary skill in the art at the time of the invention to further modify the invention of Taniguro et al. to have the air suction unit of Burkard et al. in order to more securely hold the recording medium on the platen.

Allowable Subject Matter

6. Claims 10 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed June 23, 2006 have been fully considered but they are not persuasive.

In response to applicant's argument that the capstan and pinch rollers 118 and 120 of Tranquilla equate to Applicant's pair of first conveyor rollers, Tranquilla is not used to teach this part of the structure of the invention and therefore the fact that these rollers do not move is not relevant to the rejection.

In response to applicant's argument that the nipping force of the rollers 136, 137 of Taniguro et al. remains constant, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Taniguro et al. teaches that the rollers are rotatably mounted and the nipping force is a result of urging by springs, 140. Therefore, Taniguro et al. clearly teaches that the nipping force between rollers 136 and 137 is capable of being changed and, as explained above, and thus is appropriately combined with the nipping force changing structure of Tranquilla to reject applicant's claimed invention.

With respect to applicant's claim that the modification of Taniguro et al. renders the device inoperable for its intended purpose, both Taniguro et al. and Tranquilla teach a sheet conveying and printing apparatus and the modification of Taniguro et al. to include an improved pinch force control apparatus does not render it incapable of performing these functions.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (571) 272-2159. The examiner can normally be reached on M-F 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jec



Daniel J. Colilla
Primary Examiner
Art Unit 2854